

FIG. 1

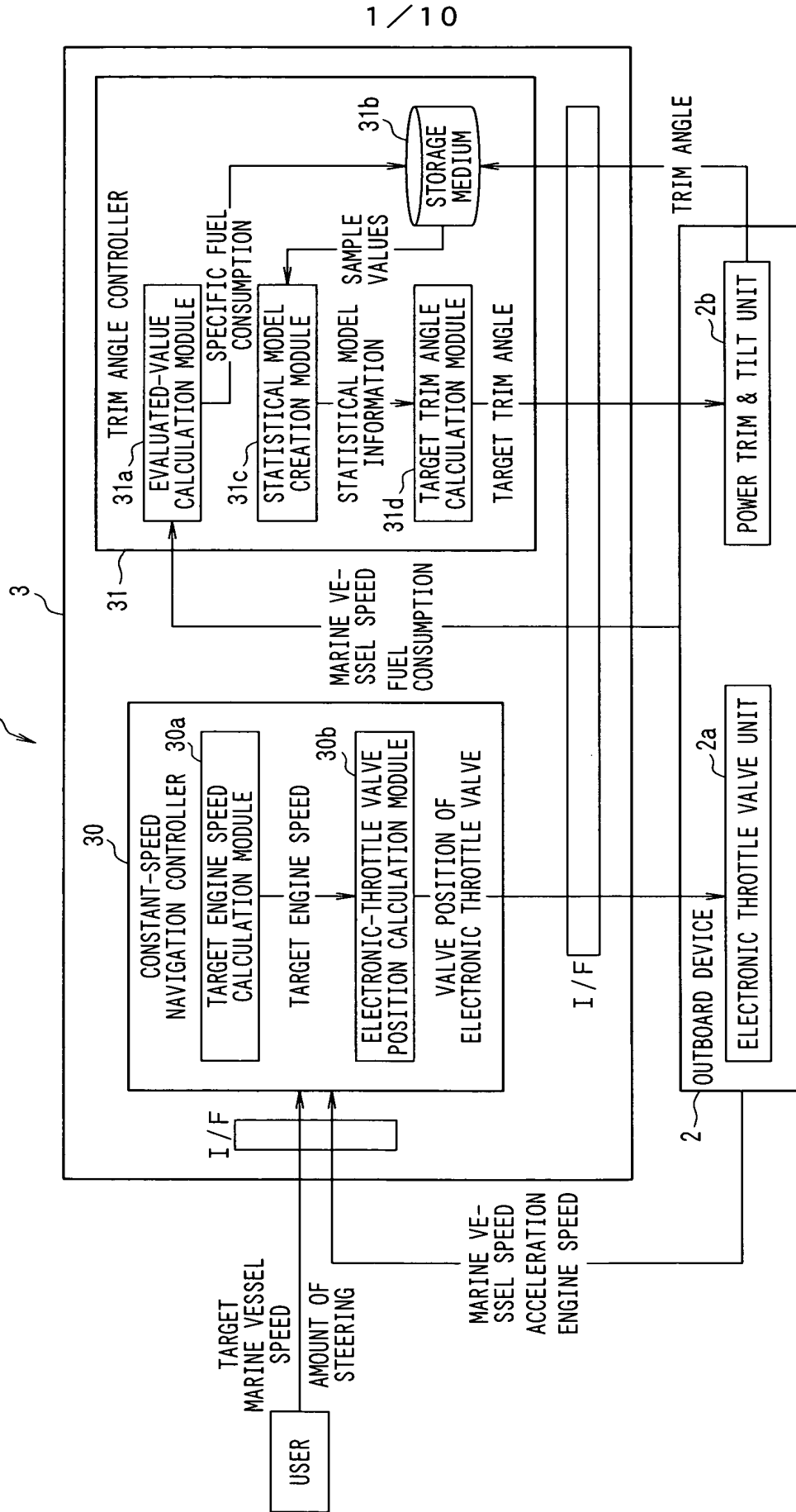


FIG. 2 A

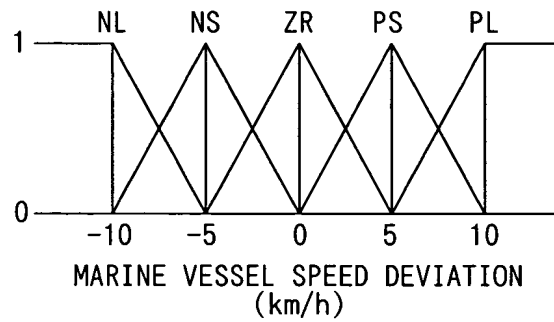
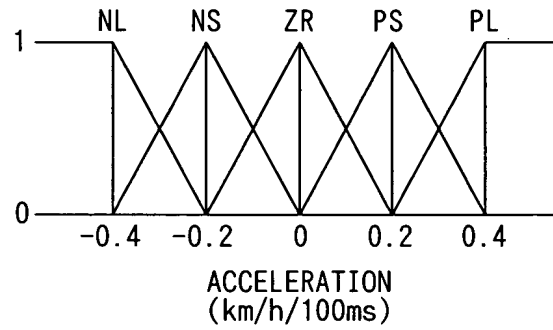
ANTECEDENT MEMBERSHIP FUNCTION

FIG. 2 B

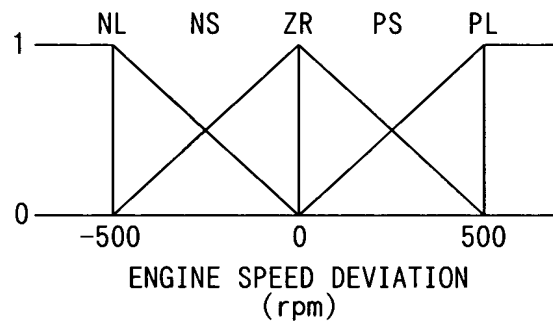
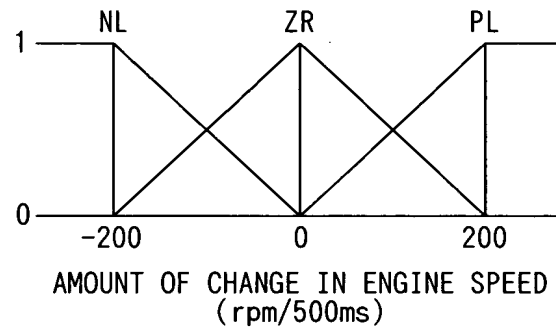
MARINE VESSEL SPEED DEVIATION

ACCELERATION

| | NL | NS | ZR | PS | PL |
|----|-----|------|------|------|------|
| NL | 50 | 50 | 0 | -50 | -100 |
| NS | 100 | 100 | 20 | -10 | -100 |
| ZR | 100 | 100 | 20 | -10 | -100 |
| PS | 10 | 10 | -10 | -100 | -200 |
| PL | -50 | -100 | -200 | -200 | -500 |

AMOUNT OF CHANGE IN ENGINE SPEED
(rpm/100ms)FUZZY RULE

FIG. 3A



ANTECEDENT MEMBERSHIP FUNCTION

FIG. 3B

ENGINE SPEED DEVIATION

AMOUNT OF CHANGE IN ENGINE SPEED

| | NL | ZR | PL |
|----|-------|--------|--------|
| NL | 8.621 | 0.345 | -0.345 |
| ZR | 4.138 | 0.000 | -4.138 |
| PL | 0.345 | -0.345 | -8.621 |

AMOUNT OF CHANGE IN THROTTLE VALVE POSITION
(%/500ms)

FUZZY RULE

FIG. 4

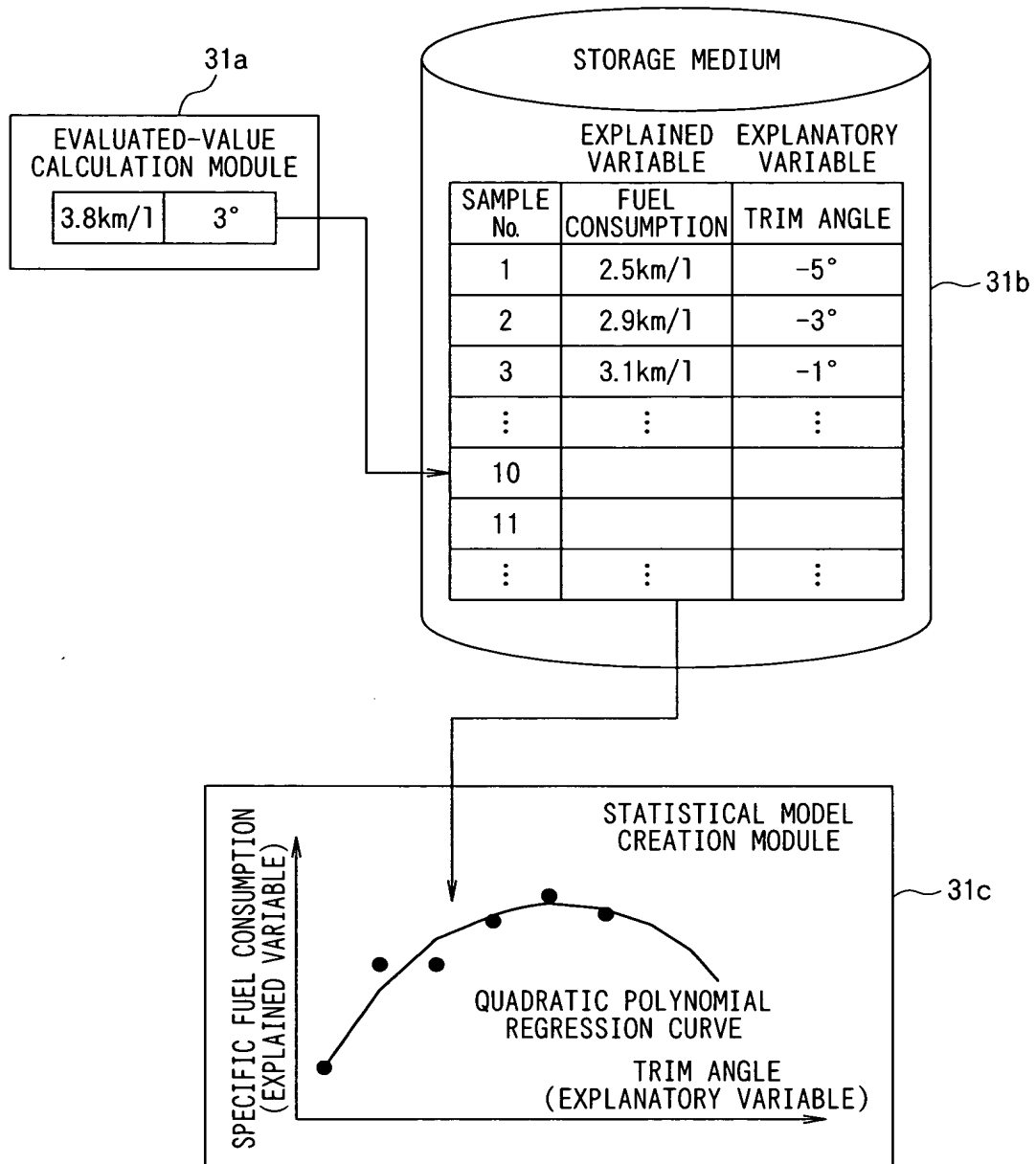


FIG. 5A

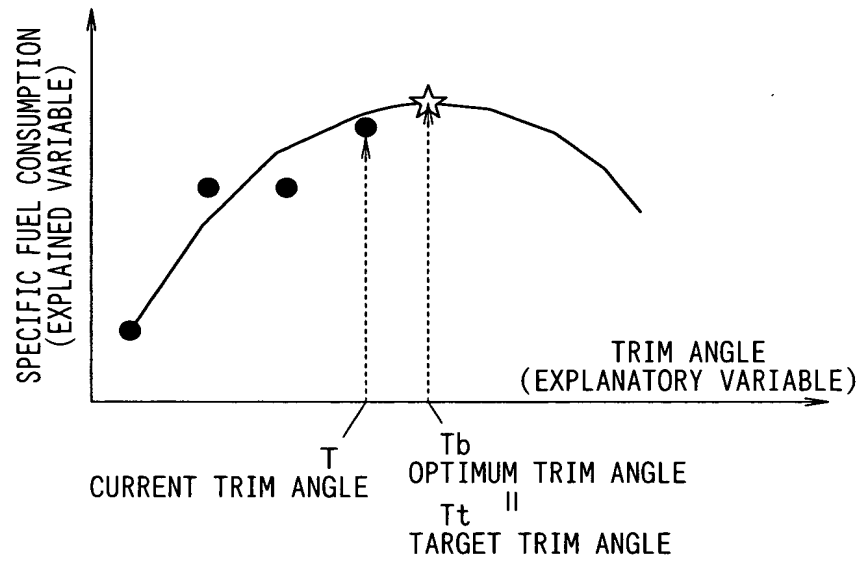


FIG. 5B

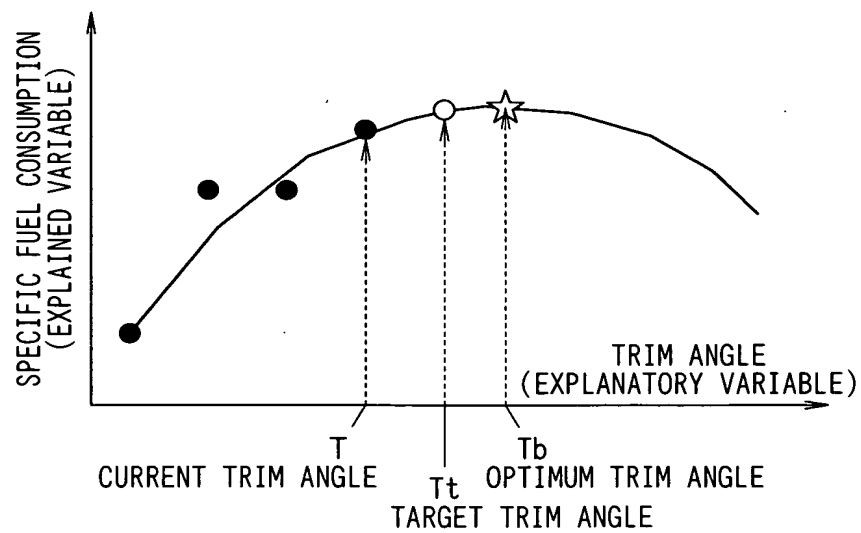


FIG. 6

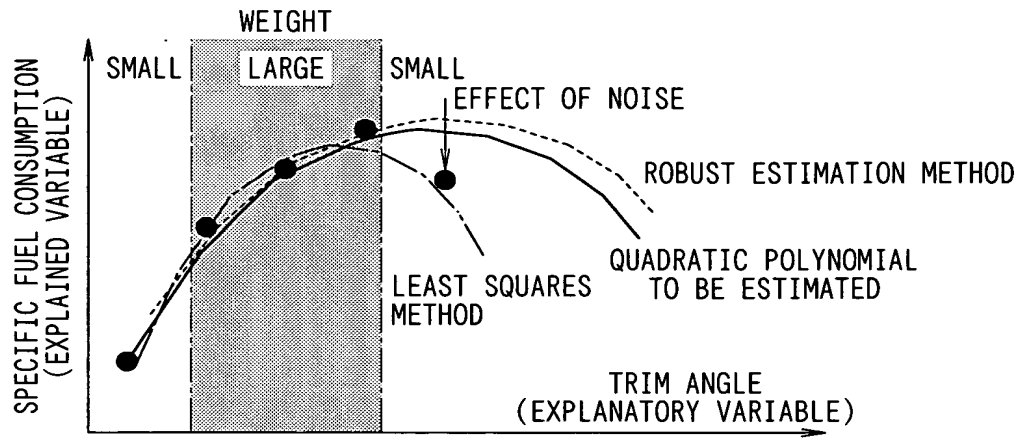


FIG. 7

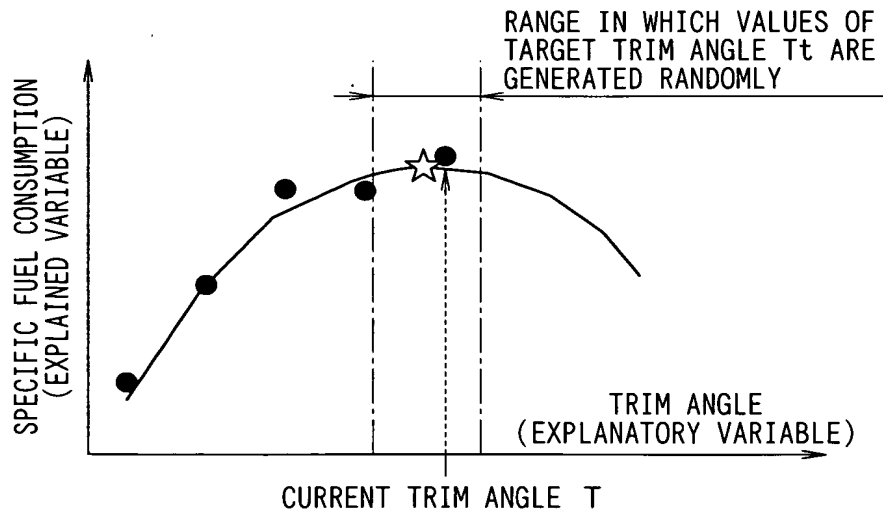


FIG. 8

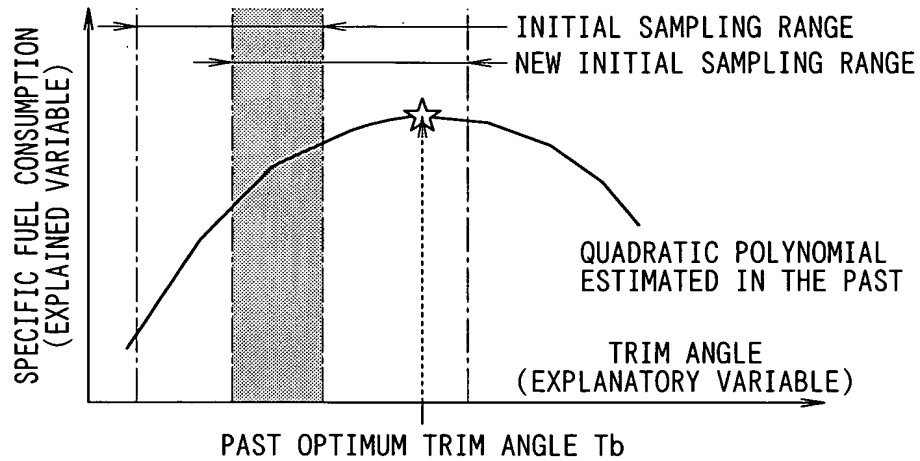


FIG. 9

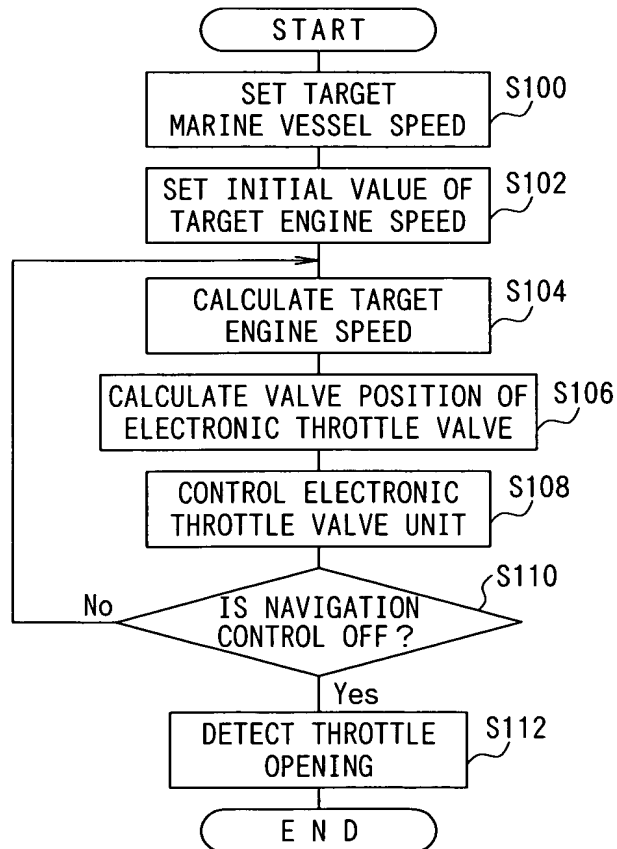


FIG. 10

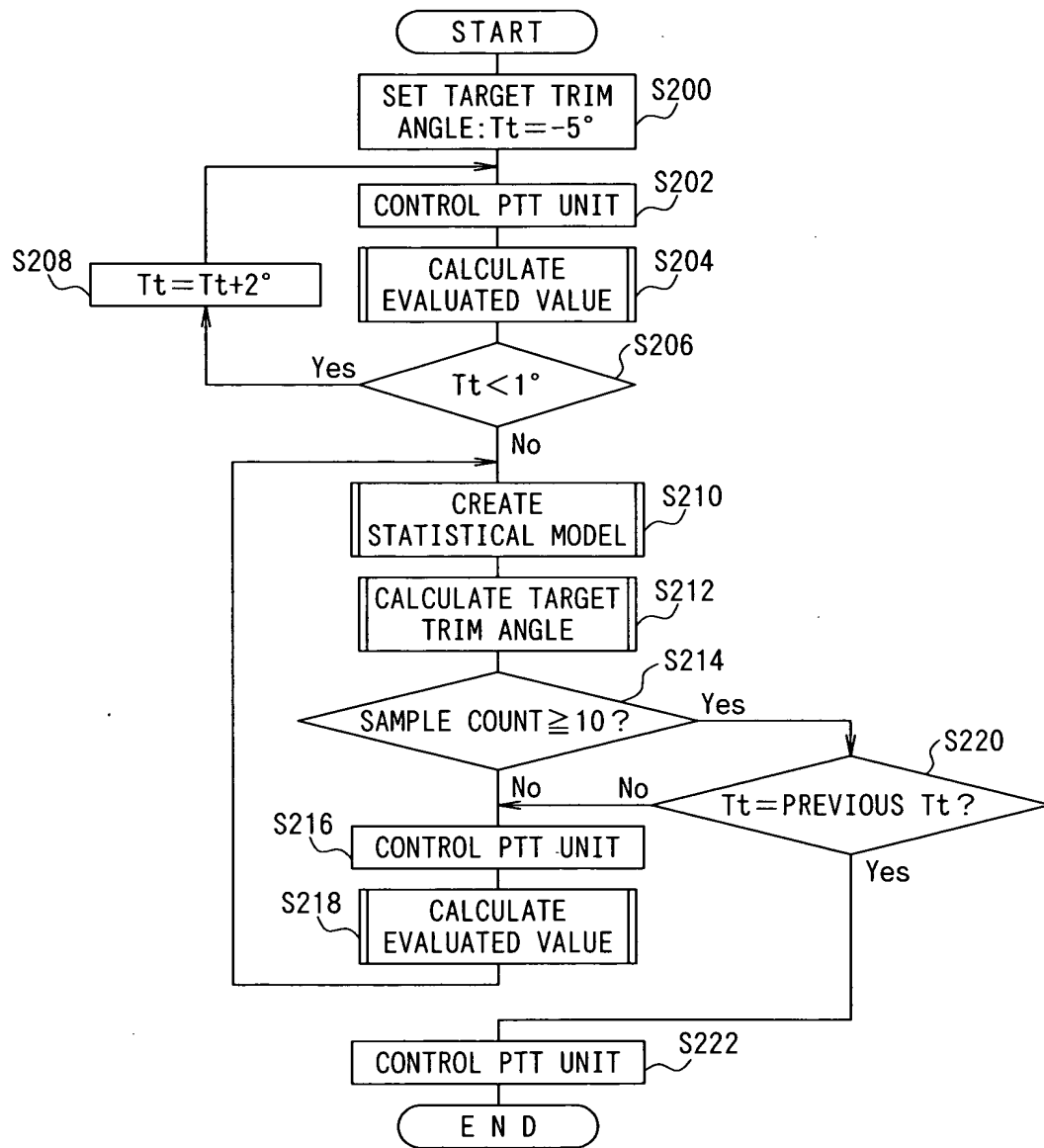


FIG. 11

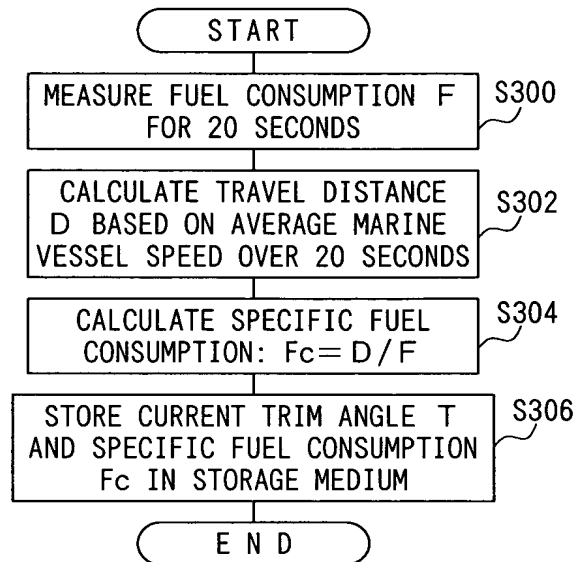


FIG. 12

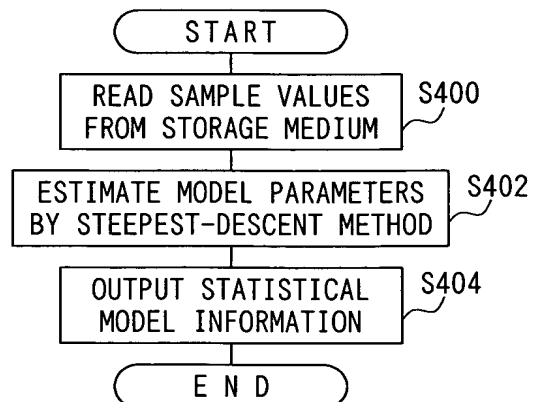


FIG. 13

